

State of Alaska
Department of Natural Resources
Division of Forestry
Coastal Region
Kenai / Kodiak Area

**Forest Land Use Plan /Final Finding
Bluff Timber Sale, SC-3180K
August 2010**



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I. INTRODUCTION

A. Purpose

The purpose of this document is to provide sufficient information to reviewers to ensure that the best interest of the state will be served by the Department of Natural Resources, Division of Forestry, Kenai-Kodiak Area offering for sale an estimated 1.2 million board feet (MMBF) or 2000 cords, of spruce by competitive sealed bids. The sale is designed to minimize impacts on visual quality, recreation, tourism, water quality, wildlife resources, and fisheries.

The Bluff Timber Sale is located approximately three miles south of Anchor Point. The sale area is composed of small “islands” of timber surrounded by muskegs. The silvicultural prescription selected for the spruce in this sale is overstory removal with reserves. The reserves will be healthy mature trees selected to serve as seed sources or concentrations of young trees too small for commercial use. All merchantable timber over 10 inches diameter at breast height (DBH)—live or dead--will be harvested. In addition to the trees intended for retention, the State will require that at least 3-4 large dead trees per acre for wildlife habitat and coarse woody debris (CWD).

This timber sale may be sold as a separate timber sale or in combination with other sales under the provisions of AS 38.05.120 [Disposal Procedure] depending on market conditions. If no qualified bid is received within the time specified for a sale, the DOF may offer the sale(s) for purchase over-the-counter for not less than the advertised minimum bid without further notice.

B. Objectives

The primary objectives of this timber sale are to:

1. Reduce the wildfire risk and potential destruction of adjacent private property, salvage timber affected by bark beetles.
2. To accelerate reforestation: harvesting timber is a means of preparing the area for new trees to establish. This proposal helps meet the Division’s statutory responsibility to provide “...sound forest practices necessary to ensure the continuous growing and harvesting of commercial forest species on ...state land.”
3. To follow DNR’s constitutional mandate to encourage the development of the state's renewable resources, making these resources available for maximum use consistent with the public interest. Firewood is the primary product of this sale, and therefore parallels the publics’ increasing firewood demand.

C. Alaska Coastal Management Program (ACMP) Consistency:

DNR believes the activity described in this FLUP is consistent with the ACMP. See Section VII for DNR’s consistency analysis.

Pursuant to AS 46.40.096(c), the Division of Forestry requested consistency review comments from state resource agencies, affected coastal districts, and other interested parties.

D. Five Year Schedule:

The Bluff Timber Sale is currently listed in the last edition of the Five Year Timber Sale Schedule 2009 - 2013.

E. Location:

The legal description of this proposed action is as follows: Section 16, Township 5 South, Range 15 West, Seward Meridian. Anchor Point is the nearest community, and is located about 3 miles northwest of the timber sale. Private and Kenai Peninsula Borough (KPB) lands are adjacent to the timber sale. The nearest regional native corporation is The Cook Inlet Region, Inc., (CIRI). The nearest village corporation is Ninilchik Natives Association. The timber sale can be located on the United States Geological Survey 1:63360 Quadrangle map titled Seldovia C-5.

F. Title, Classification and Other Active or Pending Interests:

The State received title to the lands proposed in this action under the following general grant patents: 6, 1227030 dated 5/23/62, 1217412 dated 2/27/61, & 1217604 dated 3/6/61; 1198, 1235445 dated 3/11/64 & 1232380 dated 6/21/63; and 107, 1232404 dated 6/25/63 and 1235379 dated 3/6/64. Section 16, T5S, R 15 W, SM. was patented to the State as School Trust Land under patent #1226103 dated 4/2/62. The sale is located within an area designated as Unit #243 of the Kenai Area Plan. The land use designation per the Plan is “se” for “Settlements”. According to the Kenai Area Plan, the Settlements designation is for lands that may be subdivided and sold. Timber harvest in this area would not interfere with future subdivision. The removal of dead trees will reduce the fire risk in this area with a high likelihood of increasing land value. The Division of Mining, Land, and Water stated that this proposed sale would not conflict with the intent of the Settlements designation under the Kenai Area Plan, (DML&W, 2010).

The Kenai Peninsula Borough owns the parcel immediately east of the proposed sale area. Access into the sale area will entail easement through this borough parcel, specifically along the VanSeventer Avenue Right-of-Way. The Kenai Peninsula Borough Lands department has stated no objections to easement through their parcel provided that the timber sale purchaser obtains an appropriate borough land use permit, (KPB, 2010).

This proposed sale lies within land managed by the School Trust. The School Trust has stated that they have no objections to this proposed sale, (School Trust, 2010).

G. Planning Framework

The decision to offer the Bluff Timber Sale was based on a long series of planning decisions, made with public and agency input every step of the way. This document, the Forest Land Use Plan (FLUP) for the timber sale, is one of the final steps in this long planning process. The planning for where timber harvest is appropriate, and where it is not appropriate, is done at a much broader scale than the FLUP. The framework for how management decisions are made for timber sales on the Kenai Peninsula is as follows:

1. Area plans, management plans, and land use plans (in this case, the *Kenai Area Plan*) determine where timber harvesting is allowed.
2. The Forest Resources and Practices Act and Regulations, and the Alaska Forest Management Statutes & Regulations determine how timber will be managed within areas where harvesting is allowed by the area plan.
3. The Five-Year Schedule of Timber Sales proposes when timber sales will be offered, and approximately where and how big each sale will be.

4. Next, a Forest Land Use Plan is written for each individual sale, which contains more detailed decisions about each sale.

Both the area plan and the management plan processes were the means to openly review resource information and public concerns prior to making long-range decisions about public land management. The planning processes determined how the complete range of uses would be accommodated in the proposed sale area, including opportunities for forestry, as well as protecting fish and wildlife habitat, opportunities for recreation, and the whole range of other uses. The decision to allow timber harvest in the area is based on the fact that the Kenai Area Plan's designation for this particular area allows for timber harvest.

Next, the Division of Forestry prepares a Five-Year Schedule of Timber Sales (FYSTS) every other year. The FYSTS gives the public, timber industry, and other agencies an overview of the division's plans for timber sales. They summarize information on proposed timber harvest areas, timber sale access, and reforestation plans. Five-Year Schedules are subject to public and agency review. The review helps identify issues that must be addressed in detailed timber sale planning. After review and revision, DNR uses the schedules to decide how and where to proceed with timber sale planning.

The Bluff Sale was included in the DOF's Mat-Su Area and Kenai-Kodiak Area Five Year Schedule of Timber Sales, 2009-2013. The notice was posted in all Kenai/Kodiak post offices and on the State of Alaska Public Notice and the DOF web sites. The notice was also sent to agencies, Kenai/Kodiak community councils, tribal councils, Native corporations, planning commissions, Legislative offices, conservation groups, small mill operators, timber industry representatives, and private citizens. These public comments were used to identify issues that would be addressed in the Forest Land Use Plans.

Finally, the Forest Land Use Plan (FLUP) is prepared. The FLUP presents detailed information on the location, access, harvest methods, duration, and proposed reforestation for each sale. The public is asked to comment at this stage, as well. By getting the best available data, combined with a series of public processes that helps us gather information from the public and other agencies, we make well-informed decisions about uses of resources on state land.

II. LEGAL AUTHORITY

The department is taking this action under the authority of AS 38.05.035(e) (Best Interest Finding); AS 38.05.110-120; 11 AAC 71 (timber sale statutes and regulations); AS 41.17.010-.950 and 11 AAC 95 (Forest Resources and Practices statutes and regulations); and AS 46.40 and 6 AAC 80 (Alaska Coastal Management statutes and regulations).

III. ADMINISTRATIVE RECORD

The division will maintain an administrative record regarding the decision of whether or not to offer timber within the Bluff Timber Sale. This record will be maintained at the Kenai-Kodiak Area Office and filed as SC-3180 K.

IV. DESCRIPTION OF SALE AREA

A. Physical characteristics of the sale area

Topography and Soils

The Bluff Timber Sale is situated within a geographical area that is characterized by level to gently rolling terrain. Slopes within the proposed harvest area range from 0% to 15%. The elevation is approximately 300 feet above sea level and has a southwest aspect. The sale is located in an area where the spruce beetle has killed many of the surrounding spruce trees and there is evidence that the infestation is still active.

The Natural Resource Conservation Service Soil Survey indicates there is one primary soil type within the potential harvest units of the timber sale: Redoubt silt loam. This is a well-drained silt loam that lists susceptibility to erosion as moderate. Depth to water table is over 60 inches. The Redoubt series is one of the more productive soils on the Kenai. The adjacent muskeg areas are dominated by Starichikof and Doroshin soils, which are very poorly drained soils – water table at approximately 2-4 inches. There are also some small inclusions of Chunilna mucky silt loam, which are also very poorly drained with the water table at approximately nine inches. Chunilna mucky silt loam will grow spruce at about half the productive rate of Redoubt silt loam.

The most likely potential source of soil erosion would be from road construction. This will be minimized by requiring through timber sale contracts that roads be constructed, maintained, and closed in compliance with the Alaska Forest Resources and Practices Regulations. In addition, this timber sale will be accessible only during the winter when the ground is sufficiently frozen. The overall topography is flat. With the exception of the bluffs overlooking Cook Inlet, there are no slopes steep enough to collapse,

Waterbodies

There are several small lakes within the area. The nearest anadromous and high value resident fish water body is the Anchor River (Anadromous Stream Catalog Number 244-10-10010) located about $\frac{3}{4}$ of a mile to the northeast of the timber sale boundary.

Spruce beetle outbreaks can have an effect on water yields from impacted watersheds. Water yields are probably similar to changes that occur after logging with some minor differences caused by the standing dead trees and the length of time it takes to regenerate. There have been no hydrologic studies in Alaska quantifying or describing impacts associated with spruce beetle infestations. However, there have been studies conducted in other locations. A study involving Mountain Pine Beetle in Idaho showed a 15% increase in water yield and a 2-3 week advance in snow-melt, and a 10-15% increase in low flows (USDA 1997). These are similar to studies involving timber harvest areas. In harvested watersheds where young, vigorous seedlings were established quickly, the stream flows reverted back to pre-epidemic levels more quickly than untreated watersheds.

Timber Stand Conditions

On the Kenai Peninsula, there are natural hybrids between white spruce and Sitka spruce (*Picea glauca* X *sitchensis*). This hybrid is called Lutz spruce (*Picea X lutzii* Little). Researchers believe that this hybridization occurs at varying degrees with some trees showing strong white spruce characteristics, while others will show strong Sitka spruce characteristics. Stands within the proposed block show primarily Sitka spruce characteristics. Basal area of spruce, prior to the infestation, ranges from 120-300 square feet per acre. Average age of the overstory spruce is 200+ years. However, some stands have

dominant trees as young as 130 years old. The average stand DBH is 12 inches, with an average height of 65 to 85 feet. Most of the large spruce were infested and died during the mid to late 1990's. Much of their boles have decayed making the trees more prone to wind snap.

Birch trees are few and widely scattered. The birch are old and in poor vigor. They are disappearing out of the stand. In other timber harvests that have occurred within five miles of this proposed timber sale, birch seedlings were numerous. However, moose browsing often drastically inhibits birch growth.

Natural spruce regeneration occurs when there is an adequate supply of viable seed and an appropriate seedbed (INFEST #9). Often what has occurred in unmanaged stands is a significant influx of grass and a lack of an appropriate seedbed for tree regeneration. Light levels of bluejoint reedgrass (*Calamagrostis canadensis*) are present throughout the area and increasing in locations receiving additional sunlight from the loss of canopy cover. Grass competition with regeneration is expected to be high. Bluejoint reedgrass quickly establishes itself in stands killed by spruce beetle. Because this grass lowers the soil temperature and is such an aggressive competitor, it inhibits the regeneration of both tree seedlings and browse species (Lieffers, et al 1993). One study indicates that even after 11 years, no natural tree or browse regeneration had occurred (Holsten, et al 1995). Species diversity is declining in the forested stands and bluejoint reedgrass is becoming more dominant.

Other understory plant species include rusty menziesia, twisted stalk, equisetum, spirea, Labrador tea, prickly rose, crowberry, star flower, wood fern, oak fern, feather mosses and club moss, to name a few. There are also some small pockets of devils club scattered through the area.

Wildfire Potential and Fuels Mitigation

The spruce beetle infestation during the 1990's resulted in the most significant ecological impact of any natural agent of change in Alaska (USDA 1996). The changes occurring in forests on the Kenai Peninsula are significant. The almost total loss of mature seed bearing trees over large landscapes will have very long term and profound affects on the Kenai Peninsula.

Dead spruce trees undergo changes in physical characteristics over time. The moisture content of the dead tree declines significantly. As needles and fine branches fall off, the forest floor is less shaded and more conducive to grass propagation. The boles of dead spruce trees are subject to natural decay processes such as "sap rot". The wood fiber structure changes so that tree boles lose elasticity and are not as flexible during windy conditions. A study of vegetative survey plots on the Kenai Peninsula (Holsten et. al. 1995) indicates that tree stem breakage begins to accelerate between 5-10 years after bark beetles attack forest stands.

As time progresses, standing trees begin to break off and fall into one another becoming jack-strawed. This enables surface fires to spread into the canopy. Surface fuels comprised of grass and downed trees enable wildfires to spread quickly and with greater intensity. Fires in this fuel type burn 20 times faster and 6 times more intensely than the fuel type associated with healthy white spruce stands, particularly in the spring and early fall (See 1997). Fires in downed spruce trees in grass fuels exhibit a high resistance to control by firefighters. This downed timber impedes access into a fire area by firefighters and will severely limit the use of tactical ground forces such as engines, dozers and hand crews (See 1998). Even when suppressing fires during moderate environmental conditions, placing crews in this type of fuel poses a significant personal safety risk should winds begin to rapidly increase, change direction, or if sudden slope changes are encountered.

Large-scale spruce mortality significantly influenced wildlife habitat by changing the structure and function of the forest (INFEST #11). The loss of the mature spruce and the potential loss of the younger spruce component will result in the loss of hiding and thermal cover (DF&G 1994). The remaining live forest component will be composed primarily of young spruce seedling/saplings and scattered birch.

Grass, in locations where residual tree density is minimal, will become the predominant ground cover and will inhibit the development of suckering and sprouting plants which reduces the availability of browse (Holsten, et. al. 1995). Therefore, as the stand structure changes, the population dynamics between wildlife species within the proposed sale area will vary.

B. Wildlife Habitat

The effects of the harvest activity will vary depending on species. Wildlife species that prefer mature and over-mature spruce stands will either be displaced or decline in numbers. Species preferring the grass-forb successional stage will likely increase in abundance (DF&G 1994).

Bears

For black bear, the proposed timber sale includes areas with potential late summer and early fall berry crops. It is doubtful that winter denning sites exist on the block due to its proximity to residential development. No denning sites were identified during field reviews.

Increased vulnerability of local black bear populations to hunting is a function of road location and road density which, in turn, is related to the timber harvesting systems used and the level of logging activity (DF&G 1994). The silvicultural prescription retains a fringe of undisturbed forest for the purpose of providing wildlife cover.

The brown bear population on the Kenai is presently estimated to range between 250-300 bears (Schwartz, et al. 1999). To date, there has been no census for brown bears taken on the Kenai. There appears to be a healthy viable population (Selinger personal communication, 2008). The highest densities of brown bears are in the forested lowlands and sub-alpine areas west of the Kenai Mountains. No denning sites were identified within the proposed timber sale during field reconnaissance. Additionally, the proposed sale does not occur within the elevation range commonly chosen for den sites by brown bears (Jacobs 1989). Again, due to the proximity of the timber sale to human development, the area is not expected to be utilized frequently by brown bears. In consideration for maintaining wildlife cover, patches of less than five acres of timber will be left standing between the designated harvest units to provide cover. Alternatively, all-or portions of the harvest unit will be surrounded by timber designated for retention as wildlife cover.

The spruce beetle infestation may reduce the value of the timber block over time for brown bear as hiding cover decreases and vegetation composition of the understory changes. Because of the relatively large home range and mobility of bears, the future degradation of the infested stands will probably not have significant impacts on the bear populations (USFS 1990 and DF&G 1994). Increased access associated with resource development is of concern to wildlife managers (Selinger, 2005). Roads associated with the timber harvest may cause behavioral changes with the bear population. Although evidence suggests that road avoidance behavior and habitat loss leads to changes in wildlife productivity and survivorship, there is little data currently available to support this hypothesis (Frederick 1991). To be of major concern to wildlife managers, behavioral responses to disturbance must have demonstrable demographic consequences. Demographic responses do not necessarily follow, even from significant

behavioral responses to changes of the habitat (McLellan and Shackleton 1988). Significantly, the demographic response by brown bears on the Kenai Peninsula has been an increase in the population. Since the 1950's the brown bear population on the peninsula has increased to a current estimated population of 300 (Schwartz, DF&G 1997, personal communication). This is despite a human population increase on the Kenai Peninsula from 9,053 in 1960 to 53,409 in 2008 (US Census Bureau, 2009).

Several researchers suggest that grizzly bears habituate to open roads by shifting to a more nocturnal activity pattern. Apparently, darkness may serve as cover, allowing bears to use roads and adjacent habitats and cross open areas where they are vulnerable to human harassment and hunting mortality. To use areas within 100 meters (approximately 328 feet) of roads within their home range, bears have often done so under the cover of darkness by being nocturnal in their travel and feeding patterns (Frederick 1991). This travel period may be shorter in Alaska due to the state's latitude. However, numerous studies, including at least one in Alaska (Olson, et al 1998) have shown that brown bears will use highly disturbed areas by being nocturnal, while bears in undisturbed areas tend to be more crepuscular (active during twilight)(Frederick 1991). It has also been noted that sows with cubs and yearling juveniles more frequently used habitats near roads than other bears. These areas may have been relatively secure because potentially aggressive adult males avoided them (McLellan and Shackleton 1988). Several researchers reported that adult bears in open sites usually retreated to cover when a vehicle approached within 300 meters (984 feet). However, researchers McLellan and Shackleton found that bears fled even further when approached by people on foot; in 5 of 9 cases when bears in remote areas were approached by humans, bears fled for distances greater than 1 km (0.6 miles), or out of the immediate drainage (Frederick 1991). This illustrates that bears find vehicular traffic less threatening than people on foot. This may be attributable to habituation.

Since 1986, approximately a third of bears killed in defense of life or property occur near homes, another third is associated with hunting, and the last third is from various activities such as fishing, hiking, ranching, etc. None of the DLP's were directly associated with timber harvest operations (Ted Spraker, DF&G, personal communications 1998 & Gino Del Frate, DF&G, personal communication 1997).

Kenai Peninsula bears killed in defense of life and property are more likely to occur close to roads and trails (IBBST, 2001). Motorized access will be developed under this proposal, but roads will be kept to the minimum necessary for this management activity and then closed. Harvest operations are not expected to exceed two years, so disturbance from harvest operations will be relatively brief. Temporary roads will be water-barred, cut and fill slopes stabilized, culverts removed, and woody debris spread over a portion of the roadbed and left for reestablishment of vegetation. Grass and alder will reseed rapidly on disturbed sites and help in effectively closing the road access. These actions are intended to closely align with the recommendations of the Kenai Peninsula Brown Bear Conservation Strategy (DF&G 2000).

The primary impact of harvesting may be on the home range of resident bears. However, research suggests that home ranges for brown bears can cover tens to hundreds of square miles and because of this variability; the concept of home range size is not very useful (DF&G 2000). Use of salmon spawning streams are clearly important for brown bears during the summer and fall, however, only the North Fork of the Anchor River to the south of the timber sale has spawning salmon.

The availability of security cover is considered important in how brown bears are influenced by human activities. Brown bears are at least twice as likely to be displaced from open areas where they can see or be seen by humans (Suring 1998). There will be a fringe of timber retained from harvest up to 100 feet wide adjacent to muskegs; the retention strip is intended to provide cover. However, the harvested portion of the timber sale will provide little cover for bears until the regeneration reaches an adequate height.

Moose

Within the boreal forest, moose are generally more closely associated with forest cover in summer than in winter. This may reflect a preference for forage that is higher quality as a result of delayed plant development or different plant characteristics. Cows may prefer to calve and bed their newborns on forested knolls or other vegetated high points from which predators are more easily detected. These features may also present varied escape routes that require minimal energy expenditure by calves (Collins 1995).

As the dead spruce fall to the ground, escape routes will diminish and it is likely that energy expenditure by newborn moose for escape will be increased. The increase over time in the amount of deadfall that will occur without intervention will also decrease sight distance that may result in additional predation of young moose. The increasing amount of deadfall and debris on the forest floor could limit access to preferred foraging areas and limit mobility during critical times of the year for moose (DF&G 1994). DF&G (2003) notes that increasing deadfall over time will make moose travel through these areas more difficult. Slash depths of 1 to 2.3 feet reduced forage production and hindered access for many wildlife species (Bartels 1985).

While biologists recognize the importance of overstory disturbance in the boreal forest in terms of enhanced production of moose browse, recommendations for the size and shape of the forest openings vary greatly from 5 acres to a square mile or more. While birch is not the dominate species of the existing stand, this sale operation is intended to result in mature left standing as seed sources. Ground disturbance from logging activity will result in favorable conditions for subsequent birch regeneration.

Cover is more important in summer conditions; moose have an efficient way of keeping warm in severe weather but are less efficient in moderating the effects of high summer temperatures that can cause them to overheat (INFEST #6). The buffers along the muskeg will provide some cover, but the harvested areas will not provide shading and calving areas.

Other Fur Bearers

Timber harvest activities are expected to impact the habitat for ermines, mink, and river otters by reducing cover or abundance of available prey. By retaining timber in riparian areas—as will be required in this proposed sale—the above-mentioned impacts will be offset.

Lynx occur throughout the general area. Lynx will use early successional habitats resulting from timber cutting, but require proximity to mature mixed forests (DF&G 1994).

Similarly, the proposed prescription for harvest will reduce squirrel numbers, but populations will likely remain intact, though at lower densities than prior to timber harvest (DF&G 1994). Ground cover and security from raptors will likely increase with the reforestation practices that are being incorporated. By ensuring quick reforestation after harvest, quality habitat conditions for red squirrels should be achieved in a much shorter time than in the unmanaged beetle killed forest.

Birds

Spruce grouse are also affected by the loss of spruce trees to the spruce beetle primarily through the loss of winter feeding habitat (DF&G 1994). Gradual loss of escape and thermal cover habitat will also occur as the spruce trees lose their needles and eventually fall over (DF&G 1994). The decreased winter food supplies (loss of spruce needles and buds) may displace grouse into areas of lower quality habitat that could increase nutritional stress, and lead to increased mortality (DF&G 1994). Predators associated with grouse, such as owls and goshawks, can be expected to show a response to the increased vulnerability of individual birds displaced by the infestation (USFS 1994). In large-scale infestation areas increased amounts of deadfall, grass, and other debris will impede grouse reproductive displays and reduce summer feeding habitat (DF&G 1994). The end result of no treatment of these dying stands will be a decline in local spruce grouse populations (USFS 1994).

Harvest operations will have similar effects. The loss of canopy will result in increased mortality from predation because of more visible nests and loss of protection from inclement weather (DF&G 1994). Leave areas will help to offset this loss to the extent that they are useful. Scarification, where feasible and quick reforestation efforts will help to create more suitable habitat conditions in a shorter period of time than if left in an unmanaged condition.

The spruce bark beetle infestation has increased the number of snags and downed woody material, likely benefiting cavity-nesting birds such as woodpeckers, some owls, brown creepers, nuthatches, and chickadees (DF&G 1994). Most snags are beetle-killed spruce. However, mature hardwood stands that contain some hardwood snags offer the most cavities. This is due to the morphological differences between spruce and hardwoods. Living spruce seldom has soft heartwood preferred by cavity nesters. Spruce that die usually falls to the ground within 10 years, which is the time it takes for the heartwood to soften. The larger diameter birch, aspen, and cottonwood trees are more important than spruce for cavity nesters, however, there is very few birch within the timber sale and no aspen or cottonwood trees. Spruce snags of 3-4 per acre will be retained for wildlife use. After the beetle outbreak subsides, woodpeckers will still benefit from the large numbers of secondary insects (*cerambycids*, ants, other *scolytids*) present, but this food abundance should only last 2 to 3 years (Schmid and Frye, 1977). The feeding value of these insects for woodpeckers will decrease because they are generally fewer in number and less accessible (they feed in deeper recesses in the wood). After these insects decline, the bird population is also expected to decline because of a lack of food. As the needles and bark fall off dead trees over time, these populations will also decline because of the reduction in available food and cover (DF&G, 1994).

The potential effects from a timber harvest on cavity-nesting and other non-game birds will be the shortage of suitable nesting trees, which could result in lower numbers of birds. The conversion of sites to early successional stages could result in a shift in bird species composition to favor birds that prefer grass, shrub/forb, and sapling habitats (DF&G 1994).

Fish Habitat

The nearest anadromous and high value resident fish water body is the Anchor River. The Anchor River is located about 3/4 mile north and east of the timber sale at its nearest point. The Anchor River provides spawning and rearing habitat for Chinook and Coho salmon, and Dolly Varden and Steelhead trout. It also provides habitat for resident rainbow trout.

Because of the flat terrain, timber harvest and road building activities are not expected to cause sedimentation into water bodies.

C. Human activity and social considerations

Hunting

Based on field observations, the area is hunted primarily by local residents; hunting pressure is not expected to increase in the area as a result of timber harvest. The Alaska Department of Fish and Game is responsible for setting hunting regulations, including restricting hunting areas.

Subsistence

The subject area has not been designated as a subsistence zone. Under current state law, subsistence harvest opportunities within the timber sale have been incorporated in general hunting and fishing regulations (DF&G 10/23/94). There are the following possible subsistence uses in the area: trapping, hunting and gathering of berries. The effects of the spruce beetle infestation and the proposed timber harvest on wildlife species of interest to both trapping and hunting are detailed above in the two wildlife sections. Most of the *Vaccinium* species prefer open forest conditions, which would tend to indicate that the berry crops might do well as the stands open up. However, Holsten, et al. (1995) indicated that on untreated beetle killed sites, lowbush cranberry decreased in number and on burned sites it doubled. It is anticipated that the berry crop will not be significantly affected by the proposed treatment.

Recreation

Based on field observations, there appears to be intermittent recreation presumably by local residents. Generalized use of ATV's was evident in the area. The area may be used for moose hunting in the fall, but there was no evidence of any established camps or recreational use sites. This area is not known to have unique tourism values. At this time, there are no commercial recreation operations that use this area.

Cultural Resources

Currently, there is no information that indicates the presence of archeological sites, (Krauthoefer, 2009). Under the Alaska Historic Preservation Act (41.35.200), all burials on state land are protected. If burials or human remains are found, all land-altering activities that would disturb the burial or remains shall cease and measures will be taken to protect it in place. The Office of History and Archaeology and a law enforcement officer will be notified immediately to ensure that proper procedures for dealing with human remains are followed.

Scenic

Harvest areas will not be visible from the Old Sterling Highway. Timber harvest will be visible from aircraft, snowmobiles, and ATVs. Residents and visitors to Alaska consistently rated forest vistas damaged by spruce beetles lower in scenic beauty, and the more tree mortality present the lower the perceived scenic beauty. Both residents and visitors cite loss of scenic values as an important effect of beetle damage. Visitors consistently report sightseeing as a dominant activity, and indicate views seen as a major factor affecting the quality of their visit to Alaska. Respondents of a USFS study consistently preferred preventative thinning treatments to a no-treatment scenario. For forested areas already severely impacted by spruce beetle, respondents preferred the visual conditions produced by rehabilitation strategies that resulted in more rapid regeneration of forest cover. From a list of proposed actions including a no action alternative, respondents continued to prefer actions which would include cutting and removing dead trees, even if selling them would only recover part of the costs (Daniel et. al.

1991). Cutting and removing the dead trees was also chosen over the possibility of burning a site for forest regeneration. Similar results were obtained in other studies within the U.S. (Orland, 1997 and Orland et. al. 1993).

Land Use

Additionally, the area has been used by the DOF as a personal use houselog area for the last three decades. These activities along with limited recreational use noted above are the primary uses of the area. No agricultural use or grazing is known to occur.

D. Sustained yield and allowable cut

This proposal complies with sustained yield/allowable cut principles outlined in the Kenai-Kodiak Area's Five Year Schedule of Timber Sales for CY-09 through CY-13.

E. Silviculture and Timber Harvest

The silvicultural prescription selected for spruce in this sale is salvage harvest, while keeping green reserves. All dead spruce 8 inches in Diameter at Breast Height (DBH) will be removed. Live spruce greater than 10 inches DBH will be allowed for harvest. Birch trees larger than 12 inches DBH may be harvested at the discretion of the State. After harvest, the resulting stand is expected to consist of multi-age spruce, due to the age diversity of the seedlings and pole-sized trees left in the stand. In addition to the spruce and birch trees to be retained within the harvest units, a fringe of timber up to 100 feet in width will be retained between the harvest units and muskegs in order to provide wildlife cover and seed sources. The timber sale contract will require that the purchaser protect the residual trees by such means as directional falling and avoidance.

Reforestation of the sale is therefore intended to be achieved by retaining reserve trees which will provide seed for natural regeneration. Recruitment of spruce and birch will be aided by scarification resulting from logging activity. This sale will be harvested during the winter. Where feasible, scarification will be applied as uniformly as possible over approximately 15% of the harvested areas.

Regeneration surveys will be conducted after harvest to determine if hand planting will be necessary to ensure that the stocking levels meet the reforestation requirements of the Alaska Forest Resources and Practices Regulations, 11 AAC 95.375. Trees grown from local seed sources will be hand planted on sites lacking sufficient regeneration to meet stocking standards.

Birch is present in the sale area and is estimated to account for less than 5% of the total stem density. Birch is a prolific seeder, but viability of seed is potentially low due to age and vigor of trees. Birch trees are not expected to grow to maturity in large numbers in the sale area, due to moose browse.

Delimbed tops will be re-scattered and allowed to decompose or will be burned. Some piles will be retained for their wildlife values. Large amounts of nutrients such as phosphorous, nitrogen, and to a lesser extent for other mineral elements, are stored in the foliage, twigs, and branches; smaller amounts are in the main trunk of the tree (Bartels 1985). This material (limbs, twigs, and needles) is an important source of nutrients for the next stand of trees; typically over 95% of the nitrogen is contained within this material (Perry, et. al. 1989). Disposal of green or infested spruce material larger than five inches in diameter shall be in accordance with the standards set in 11 AAC 95.195(b) of the Forest Practices Regulations. Stump heights will be kept as low as feasible, typically less than one foot.

F. Transportation

The primary access to the timber sale is off the Old Sterling Highway, turning onto Van Seventer Avenue. Access across state lands developed to harvest timber within this block will only be what is necessary to facilitate removal of timber. Roads will be constructed to minimize impacts and protect water and upland resources while achieving the forest management objectives. The temporary road will be a combination of winter road across frozen bogs and upland areas constructed of native material to State standards. No permanent roads will be developed. The access roads in the attached maps for this sale were drawn within public right-of-ways. All roads constructed for the purpose of accessing this timber sale will be approved by the Division of Forestry.

As determined by the Division of Forestry, the purchasers will be required to close roads on state lands at the conclusion of their sale. The temporary roads on state land that are put to bed upon completion of use will be closed in accordance with the Forest Resources and Practices Regulations on road closure (11 AAC 95.320). Additionally, wood debris will be spread over a portion of the road bed to minimize future impacts of all terrain vehicles.

G. Erosion

This proposed firewood sale is on relatively flat terrain; the overall slope is less than ten percent grade. Therefore, no slope failures or soil movement is expected.

H. Mining

There is no known mining activity in this area and therefore no effect.

I. Materials

This proposed harvest will not preclude future development of a material site. Needed borrow material for the timber sale road(s) will be minimal and acquired from within the right of way. No pits will be developed.

V. MARKET CONDITIONS AND ECONOMICS

The local market includes domestic sawlogs, house logs and firewood. Most of the timber from this sale area will probably be sold and utilized as firewood. The cost of heating oil on the Kenai Peninsula rose sharply in 2008. The demand for firewood has increased noticeably over the previous two years. Consequently, firewood sold for \$125 to \$150 per cord in 2008. Firewood prices are presently competitive with sawlogs as an end product for all but the green wood. Firewood will likely be in greater public demand than either sawlogs or house logs in the near future. The DOF anticipates this sale to be marketable based on past sale activity.

VI. ALTERNATIVE ACTIONS

After a review of the material and information discussed above, the following alternatives have been considered:

1. **Offer a timber sale as outline in this Forest Land Use Plan.** This alternative meets the objectives of the Five-Year Schedule of Timber Sales and one of DNR's mandates to make the state's renewable resources available for public use. It also meets the silvicultural objective of improving forest vigor,

provides for a value-added end product and creates additional local jobs due to the combination of road building, logging, and trucking.

2. **Offer this timber sale at another time.** This sale is intended to be large enough to be economically viable for mechanical logging methods. Increasing the size of the harvest unit will eliminate the surrounding no-harvest buffers which are intended to provide visual cover for wildlife. Decreasing the size of the sale area will reduce the supply of firewood and leave more timber to further deteriorate on the site and exacerbate the wildfire fuel loading. This sale is large enough to cover the costs of constructing access roads and cover the mobilization costs to operate in the Anchor Point area under historic conditions. This sale is appropriately balanced to maintain other resource values as well as provide economic benefits to the Kenai Peninsula.

3. **Modify the Sale by making the harvest units smaller.** This alternative would not provide sufficient wood to make the sale economical. Moreover, wildfire fuel loading would not be effectively reduced.

4. **Do not offer this timber sale.** This alternative would result in not meeting any of the objectives outlined for this management action. Utilization of the forest resource would not be achieved. There would be no significant contribution to the state and local economies. This alternative would delay the management objectives planned for the area, would deny making a source of raw materials available to the local wood products industry, and would delay the harvest of dead trees, mature trees, disease infected trees, and trees at risk to insect infestation. Decay in infected and infested mature spruce and birch trees results in loss of economic value.

VII. ACMP CONSISTENCY ANALYSIS

This area is within the Kenai Peninsula Borough District Coastal Program. There are no known natural hazard areas, or areas of historic or archaeological importance within the proposed sale area. There is no coastal development occurring in the area and the proposed sale will not inhibit coastal access to the public. No energy facility, utility route, or utility facility exists or will be developed as a result of this action. No sand or gravel will be extracted from coastal waters, intertidal areas, barrier islands, or spits. The area has not been identified as a subsistence area under 11 AAC 114.250(g) and any subsistence use is thought to be minimal. Therefore, the sale does not conflict with the standards on coastal development, natural hazard areas, coastal access, energy facilities, utility routes and facilities, sand and gravel extraction, subsistence, and historic, prehistoric and archeological sites.

Road construction and timber harvesting activities will adhere to the Forest Resources and Practices Regulations (FRPA), meeting timber harvest and processing standards.

This offering is consistent with the ACMP habitat standards because 11 AAC 95.185(g) preempts the habitat standards enacted under 11 AAC 112 and 11 AAC 114, and the proposed action has been designed to be consistent with the Forest Practices.

The laws and regulations regarding timber harvest and the quality of air, land, and water administered by the Department of Environmental Conservation will apply ensuring consistency.

VIII. FINAL FINDING, DECISION, AND ACMP CONSISTENCY DETERMINATION

A. Alaska Coastal Management Program Consistency Determination

The reviewers that responded with comments were the Department of Environmental Conservation, the Alaska Department of Fish and Game Habitat Division, the Alaska Department of Fish and Game Conservation Division, and the Kachemak Bay Conservation Society. The Division of Forestry is required by the Area Plan and State statute to seek input from agencies as to whether the project is consistent with the ACMP. All reviewers recommended or concurred that this project be found consistent or state that it will have no adverse effect.

The final finding also contains the Division of Forestry's ACMP consistency analysis. The Division of Forestry believes this action is consistent with the Alaska Coastal Management Program. The requirements of applicable statutes and regulations have been satisfied. The Division of Forestry therefore is issuing an immediate Final Consistency Determination as allowed under 11 AAC 110.255(j).

B. Best Interest Decision

The purpose of this decision is to determine if the Department of Natural Resources, Division of Forestry, will make available timber located in portions of Section 16, T.5S, R.15W, Seward Meridian. After due consideration of all pertinent information and alternatives, the Division of Forestry has reached the following **Final Decision: To offer the sale as proposed in Alternative 1.** The Division of Forestry finds that this final decision satisfies the objectives as stated in this document and it is in the best interest of the State to proceed with this action under its authority of AS 38.05.035(c) and AS 38.05.120.

A person affected by this Best Interest Decision who provided timely written comment may request reconsideration in accordance with 11 AAC 02. Any appeal must be received by August 27th, and must be mailed or delivered to Tom Irwin, Commissioner, Department of Natural Resources, 550 W. 7th Avenue, Suite 1400, Anchorage, Alaska 99501; or faxed to (907) 269-8918, or sent by electronic mail to dnr.appeals@alaska.gov. If reconsideration is not request by August 30th, or if the commissioner does not order reconsideration on his own motion, this decision goes into effect as a final order and decision on August 31.

Failure of the commissioner to act on a request for reconsideration within 30 days after issuance of this decision is a denial of reconsideration and is final administrative order and decision for the purposes of an appeal to Superior Court. The decision may be appealed to Superior Court within a further 30 days in accordance with the rules of the court, and to the extent permitted by applicable law. An eligible person must first request reconsideration of this decision in accordance with 11 AAC 02 before appealing this decision to Superior Court. A copy of 11 AAC 02 may be obtained from any regional information office of the Department of Natural Resources.

If you have any questions, please contact Hans Rinke Kenai-Kodiak Area Forester at (907) 260-4200 or by e-mail hans.rinke@alaska.gov.

Michael Curran
Costal Regional Forester

Date

Acronyms and Abbreviations:

ADFG: Alaska Department of Fish and Game
BMPs: Best Management Practices
DBH: diameter at breast height
DEC: Department of Environmental Conservation
DLP: Defense of Life and Property
DNR: Department of Natural Resources
DOF: Division of Forestry
FF: Final Finding (Forest Land Use Plan)
FLUP: Forest Land Use Plan
FRPA: Alaska Forest Resources and Practices Act
FYSTS: Five Year Schedule of Timber Sales
KAP: Kenai Area Plan
ORV: off-road vehicle
PD: Preliminary Decision (Forest Land Use Plan)
SHPO: State Historic Preservation Office

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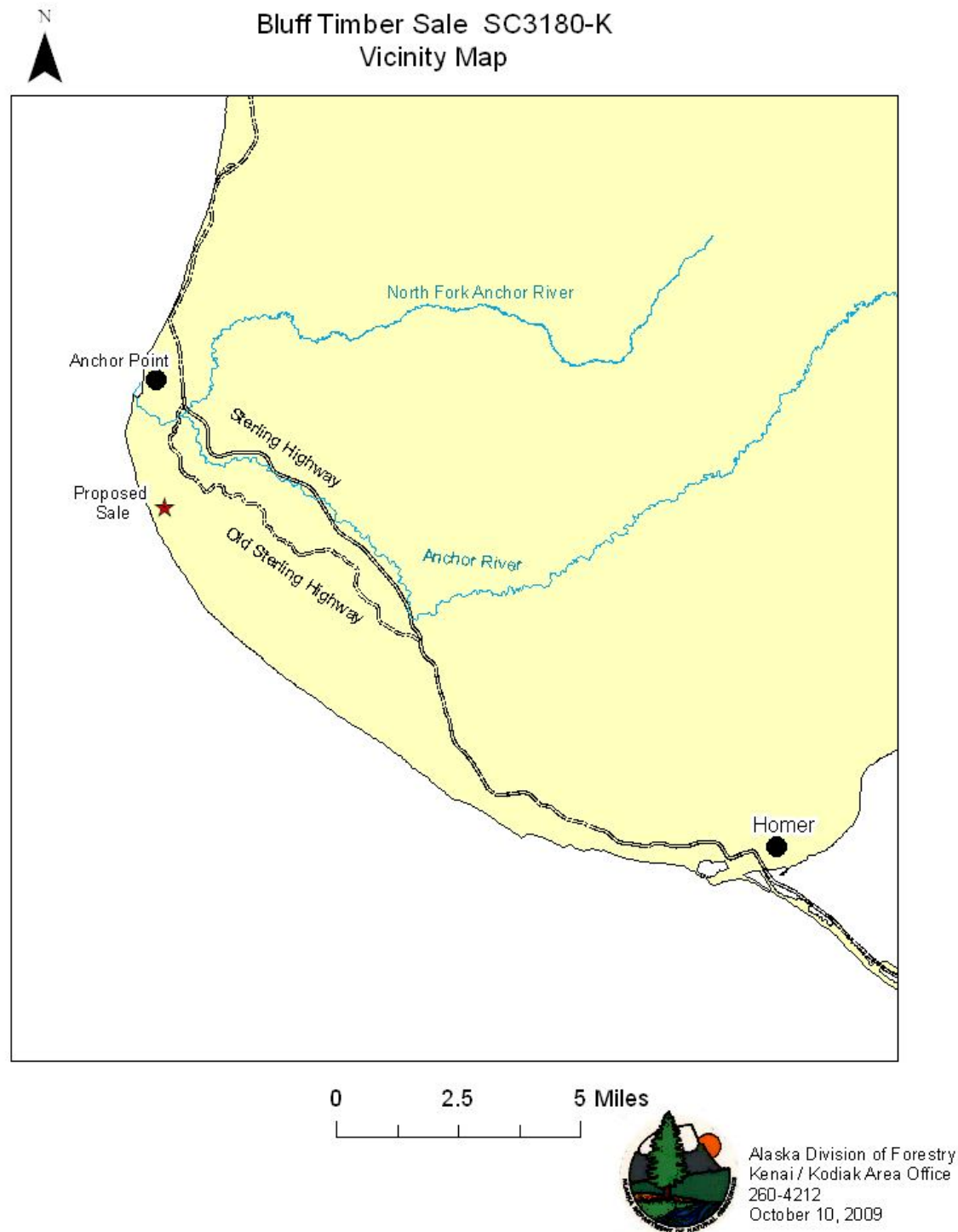
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Links to Planning Documents:

Kenai Area Plan online: http://dnr.alaska.gov/mlw/planning/areaplans/kenai/pdfs/master_KAP.pdf

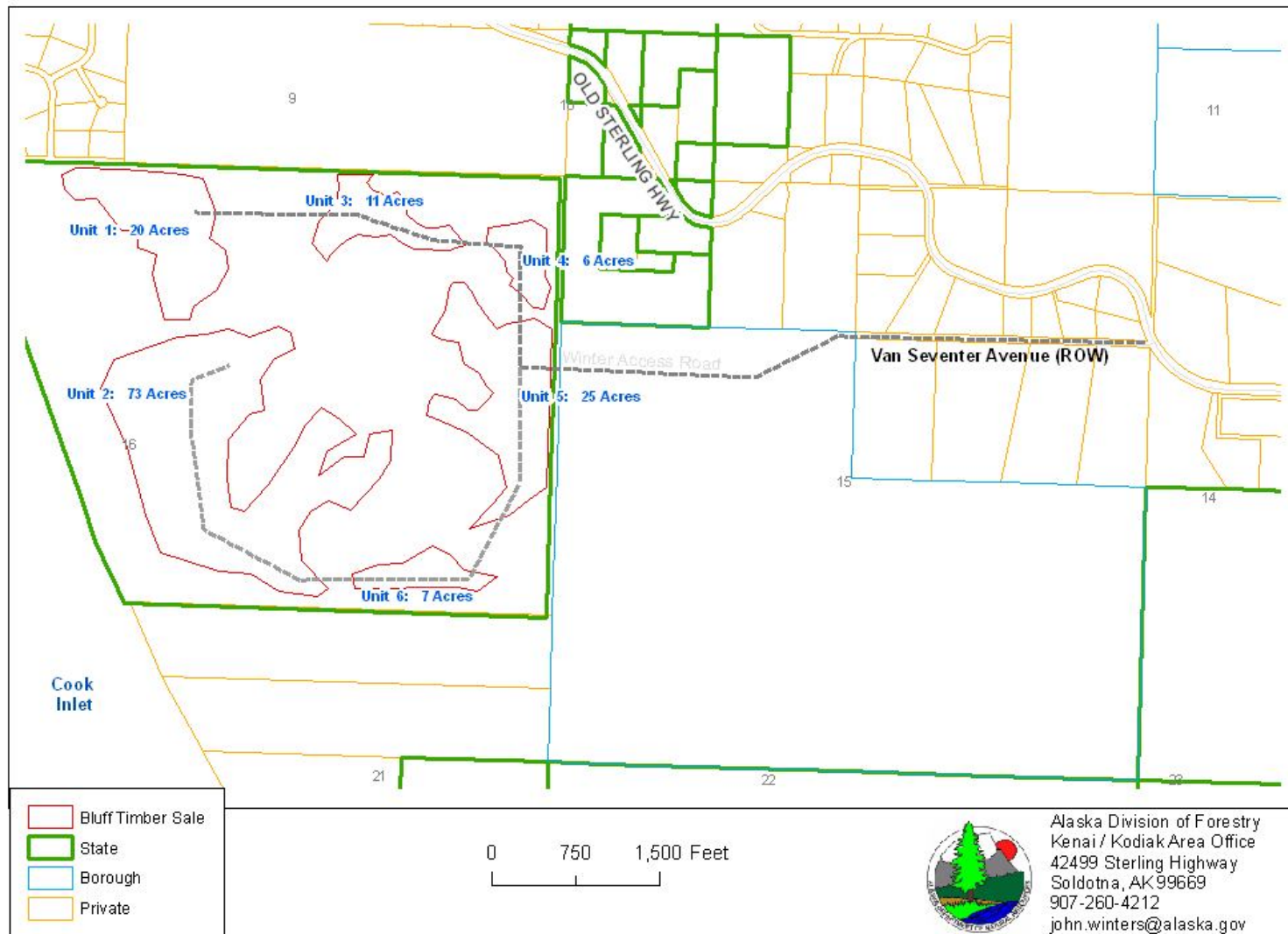
Timber Sale Maps





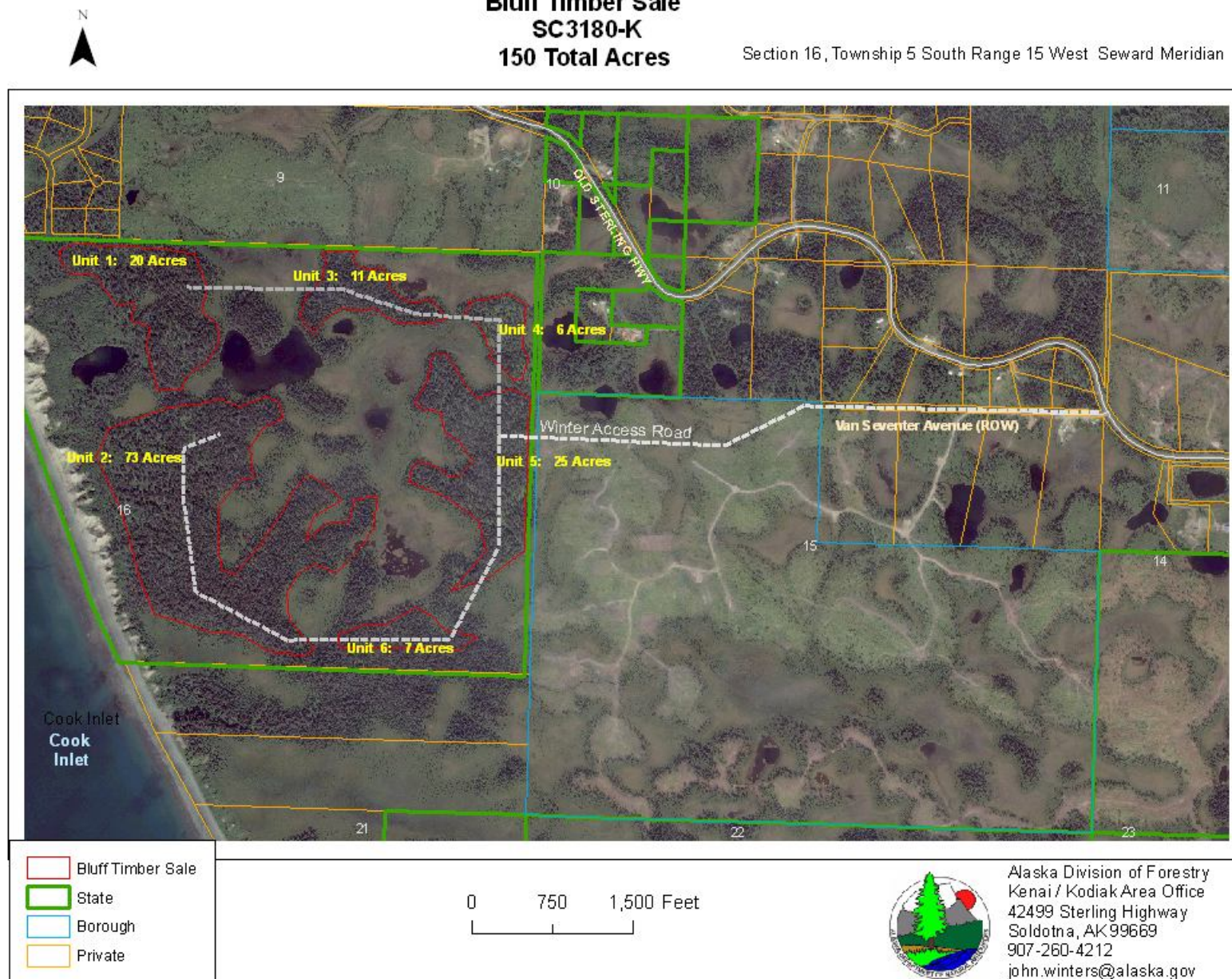
**Bluff Timber Sale
SC3180-K
150 Total Acres**

Section 16 Township 5 South Range 15 West Seward Meridian



**Bluff Timber Sale
SC3180-K
150 Total Acres**

Section 16, Township 5 South Range 15 West Seward Meridian



Comments & Responses

August 2010

The following comments were received during the public comment period on the Bluff Timber Sale.

Organization	Author	Location
Department of Environmental Conservation (DEC)	Kevin Hanley	Juneau
Department of Fish & Game / Habitat	Ginny Litchfield	Soldotna
Department of Fish & Game / Wildlife Conservation	Ed Weis (Through Ginny Litchfield)	
Kachemak Bay Conservation Society	Roberta Highland	Homer

Commenter	Comment	Response
	Water Quality	
Kevin Hanley DEC	“Given the lack of streams or other surface waters within the proposed harvest units and along the proposed road alignments, we have no significant concerns for these timber sales and, pursuant to AS 46.40.096(d) of the Alaska Coastal Management Program and 11 AAC 95 (the Forest Practices Regulations), recommend they be found consistent.”	Comment noted.
	Fish Habitat	
Ginny Litchfield ADF&G	“Since there are no proposed crossings of resident or anadromous streams, and ‘no-harvest’ stream buffers o protect riparian areas, we believe fish habitat will be adequately protected in these two proposed timber sales.”	Comment noted.

Commenter	Comment	Response
	Reforestation	
Ed Weis, through Ginny Litchfield ADF&G	“Scarification is identified as a requirement in the introduction of the North Fork sale area but it is not carried forward into the Silviculture and Timber Harvest Section of the document. And this measure is absent from the measures in the Bluff Sale area.”	Changes made. The Silvicultural and Timber Harvest Section of this document now states where feasible, scarification will be applied as uniformly as possible over approximately 15% of the harvested areas. Scarification is also expected to occur incidentally from logging activity.
	“While we [Fish & Game] concur with the DOF measures regarding the minimization of residuals we would like them to include specific language to avoid disturbance or destruction of nurse logs.”	No changes made. The timber sale contract will not require removing logs decayed beyond merchantability. Although some logs will be displaced or damaged from logging activity; others will remain sufficiently intact to eventually host seedlings. However, site disturbance from logging as well as applied scarification is expected to provide seed beds for natural regeneration.
	“The plan calls for planting with spruce seedlings from locally collected seed and grown seed. However, the section also notes that this proposal may be adjusted post-harvest depending on success in protecting residual seedlings and saplings. We request that if the proposal is altered that any planting done still be done with spruce seedlings from locally collected and grown seed.”	Concur with this comment. Seedlings cultivated for reforestation will be from a Lutz spruce seed source as close in origin to the sale area as possible.

	Wildlife habitat	
	<p>”The Wildlife Habitat sections of both the North Fork and Bluff documents mentions a 100 foot fringe retention area of undisturbed forest for providing wildlife cover. However, it notes this as being in the ‘...silvicultural prescription...above’.</p>	<p>Changes made in the Wildlife Section. The Silviculture and Timber Harvest Section of the FLUP now states that a fringe of timber up to 100 feet wide will be retained between the harvest units and muskegs.</p>
<p>Roberta Highland KBCS</p>	<p>“We are pleased to see that one of the objectives for both timber sales is to “accelerate reforestation.” Properly done, removing stacks of dead and down trees can both enhance forest regeneration and improve habitat for wildlife.”</p>	<p>Comment noted.</p>
	Fire Suppression / Fuels Management	
<p>Roberta Highland KBCS</p>	<p>“While we agree that reducing fuel load via timber sales can reduce the risk of fire, we think that this objective should be used selectively and when it really applies. Accordingly, we question whether the Bluff Timber Sale, which has Cook Inlet on its west side, really poses much of a fire risk to the homes east of the proposed timber sale.”</p>	<p>No change to the objectives. Mitigating potential wildfire fuels will remain an objective in the FLUP. There is developed property to the north, east and south of this sale area. It is the DOF’s assessment that wildfires could spread towards other directions besides west towards Cook Inlet.</p>